

REMARKS

The Examiner is thanked for the non-final Action dated December 16, 2004. The above amendment and remarks to follow are intended to be fully responsive to the issues presented in that Action.

Claim 2 were objected to for a minor informality which has been corrected by the above amendment.

Claim 1 were rejected under 35 U.S.C. §103(a) as being unpatentable over Shimizu et al. (USP 5,368,408) in view of Pazdirek et al. (USP 6,398,446) and Kobayashi (USP 5,092,703). These rejections are respectfully traversed in view of the foregoing amendments and the following comments.

The instant invention is directed to a tie rod comprising a stem provided at its ends with ball joints each composed of a metallic ball joint box, a bearing, a protection cover and a ball pin. The tie rod is provided for fixing pieces and components of a mechanical system between themselves, while allowing angular and rotational movement therebetween, supporting the strains concentrated therein. The stem of the tie rod is made of material comprising a polymer composite with fiber reinforcements and combined with components of the metallic ball joint box. The ball joints are attached to the ends of the stem by chemical fixing that, due to the process of application, cure and drying, assures the resistance required to the objective to which ball joints are intended, making the tie rod a tie rod with fixed length. Alternatively, the ball

joints are attached to the ends of the stem by means of a thread on the body of the stem and in the ball joints' boxes, making the tie rod a tie rod with variable length. The adjustment of its length and the locking of the tie rod are provided by nuts provided on the threads of the stem and that are tightened against the boxes of the ball joints.

Thus, the present invention is a combination composite tie rod and metallic ball-joint box or housing. The prior art fails to teach or suggest this combination of components. Indeed, the prior art of Shimuzu et al. '408 and Kobayashi '703 teaches either a metallic ball-joint-box/tie rod system or a composite ball-joint-box/tie rod system; none teaches a combination of composite/metallic system. Shimizu et al. '408 teaches a metallic ball joint box and a metallic tie rod. Kobayashi '703 teaches a ball joint with a composite ball joint box or housing and a composite rod or shaft portion 32.

Pazdirek et al. '446 is silent about a combination of materials with the tie rod formed of a composite material and a ball joint box formed of metal. Pazdirek et al. '446 discloses a composite ball joint box (see col. 2, lines 19-24) and a metal or composite tie rod (col. 4, lines 41-47).

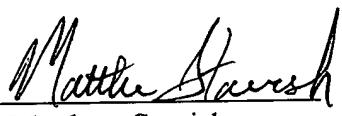
Applicant respectfully submits that the combination of the prior art document applied by the Examiner will not result in the combination of materials set forth in the amended claims. Instead, the prior art teaches either all composite structures or all metal structures. In one instance, Pazdirek et al. '446 teaches a composite ball joint box with a metal tie rod, which opposite to the structure of the present invention where the box is metal and the tie rod is composite.

In re YAGYU  
10/020,275

It is respectfully submitted that this application is in condition for allowance and notice to that effect is earnestly solicited. Should the Examiners believe additional discussion would advance the prosecution of the instant application, they are invited to contact the undersigned at the local telephone number listed.

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